

FIG. 1

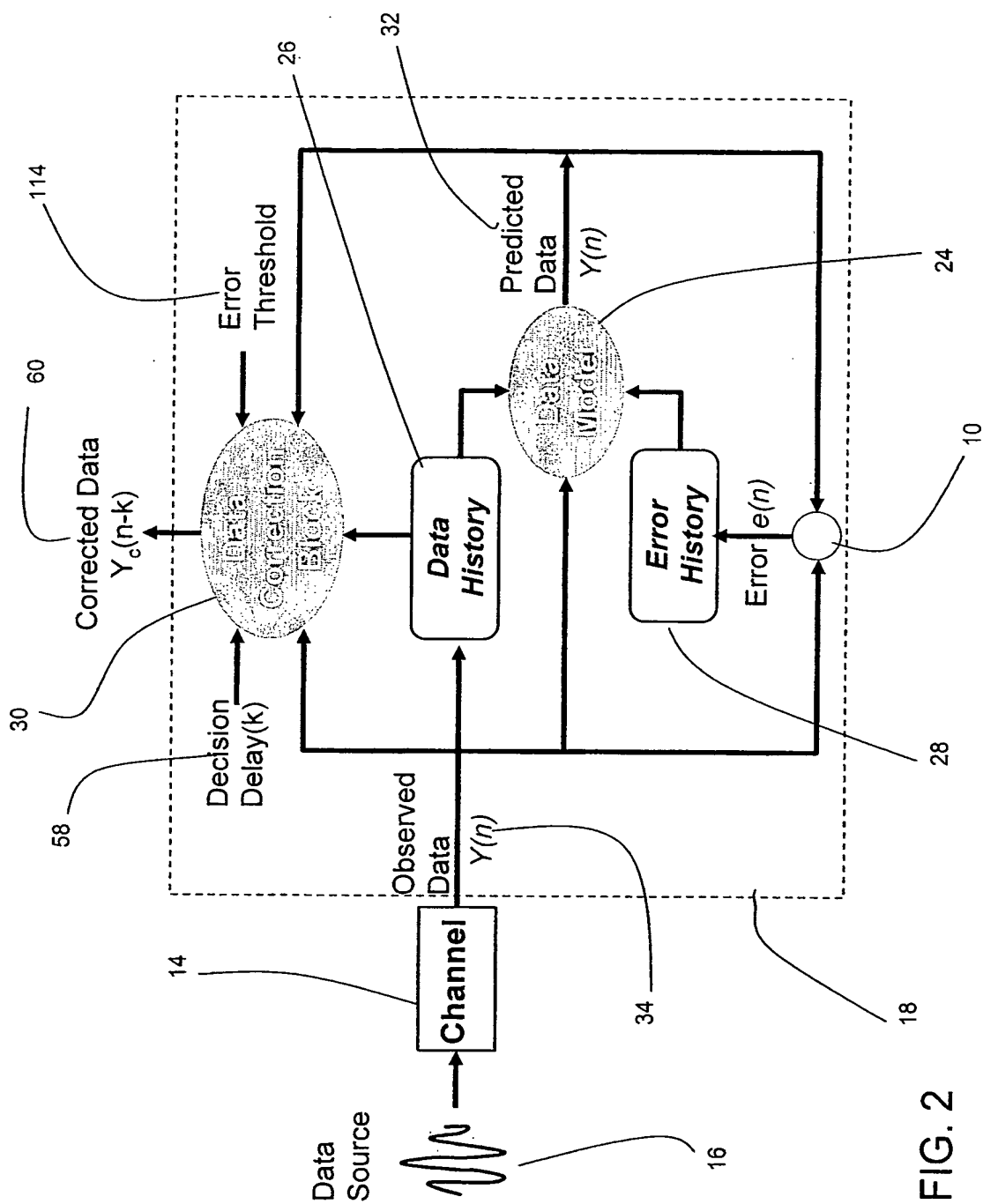


FIG. 2

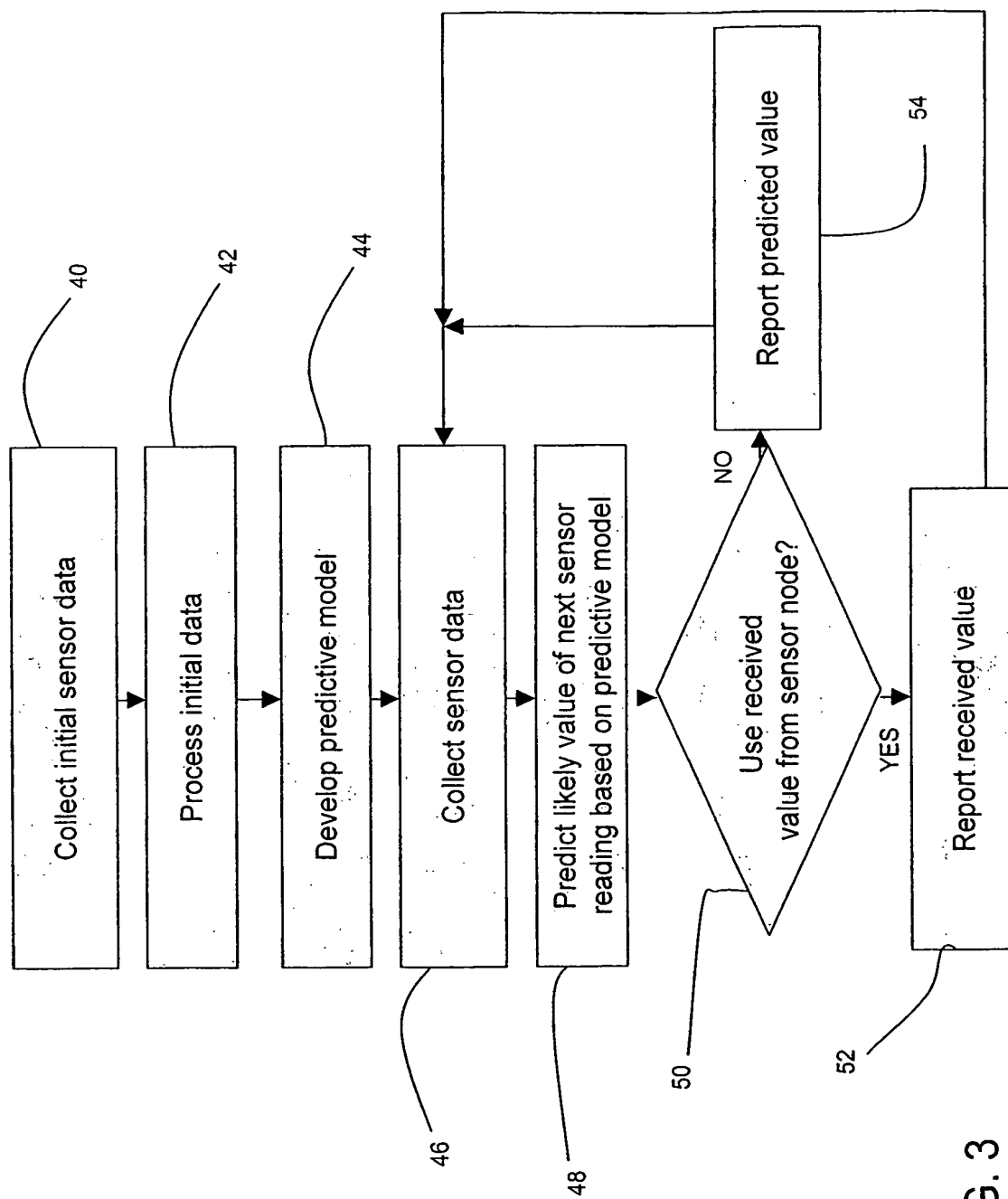


FIG. 3

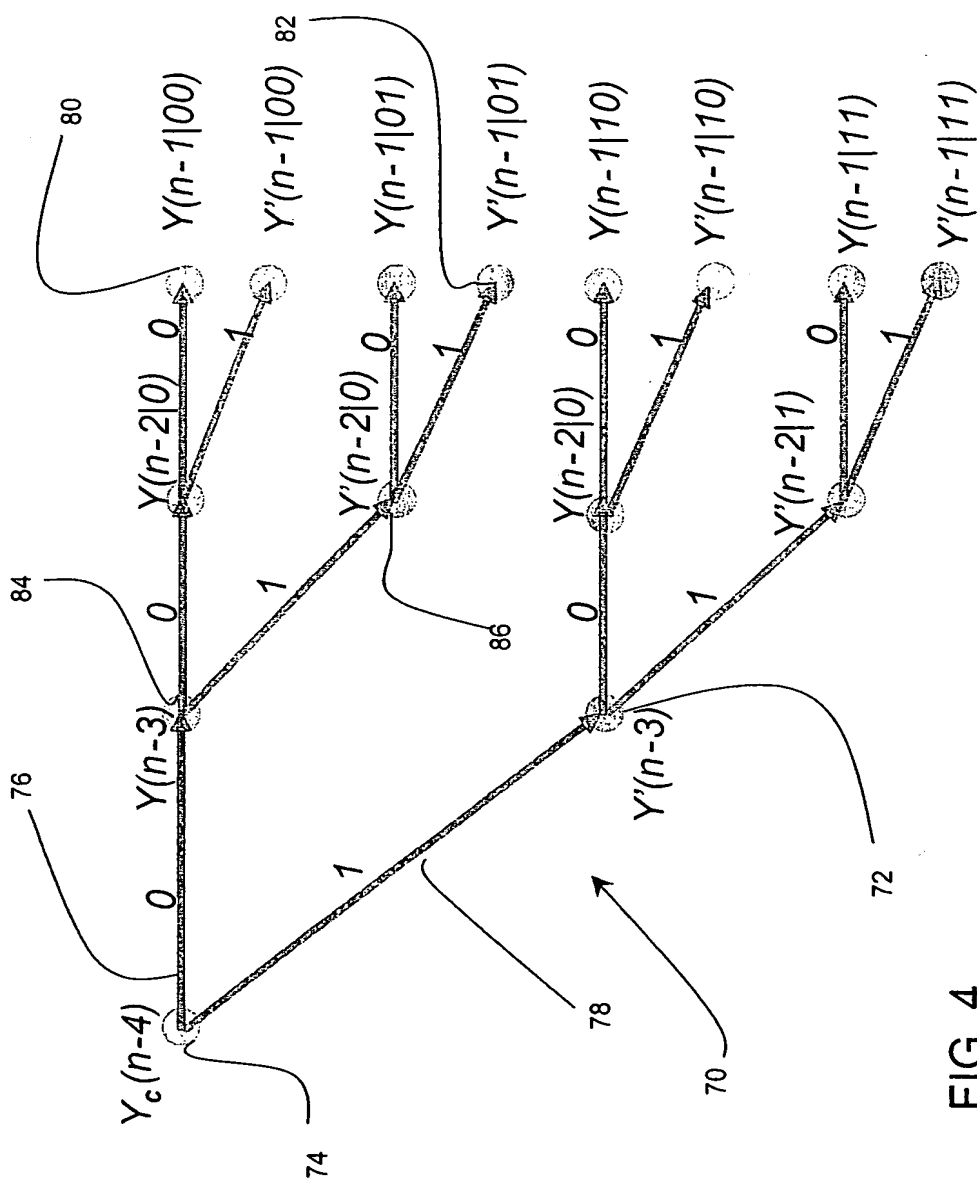


FIG. 4

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90   for each sample at time  $n$ ,
91   observe value  $Y(n)$ 
92   for each path  $i$  from root to leaf in PHT
93        $Y'(n, i)$  = Predict (model, data & error history for path  $i$ )
94        $E(n, i) = Y(n) - Y'(n, i)$ 
95
96       
$$\text{PathErr}(i) = \frac{1}{N_i} \sum_{j=n-K}^n E^2(j, i)$$

97
98       where  $N_i$  = No. of nodes in path  $i$  using predicted values
99   end
100
101   find  $i = i_{\min}$  which minimizes  $\text{PathErr}(i)$ ;
102    $\langle Y(n-K), E(n-K) \rangle = \text{updatePHT}(i_{\min}, Y'(n, i), Y(n))$ 
103   end
104
105   updatePHT( $i, Y'(n', j), Y(n)$ ):
106   begin
107       find  $s$  = level 1 node containing path  $i_{\min}$ 
108       [ out of  $Y(n-K)$  and  $Y'(n-K)$  ]
109        $\langle y, e \rangle = Y$  and  $E$  values of node  $s$ 
110       PHT  $\leftarrow$  subtree of PHT rooted in  $s$ 
111       to each leaf node  $j$  of new PHT, add 1st child  $Y(n)$ ,
112       and if  $(|E(n, j)| > ETH)$  add 2nd child  $Y'(n, j)$ 
113       return  $\langle y, e \rangle$ 
114   end

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FIG. 5